

White Paper

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Institution: Wildlife Conservation Society

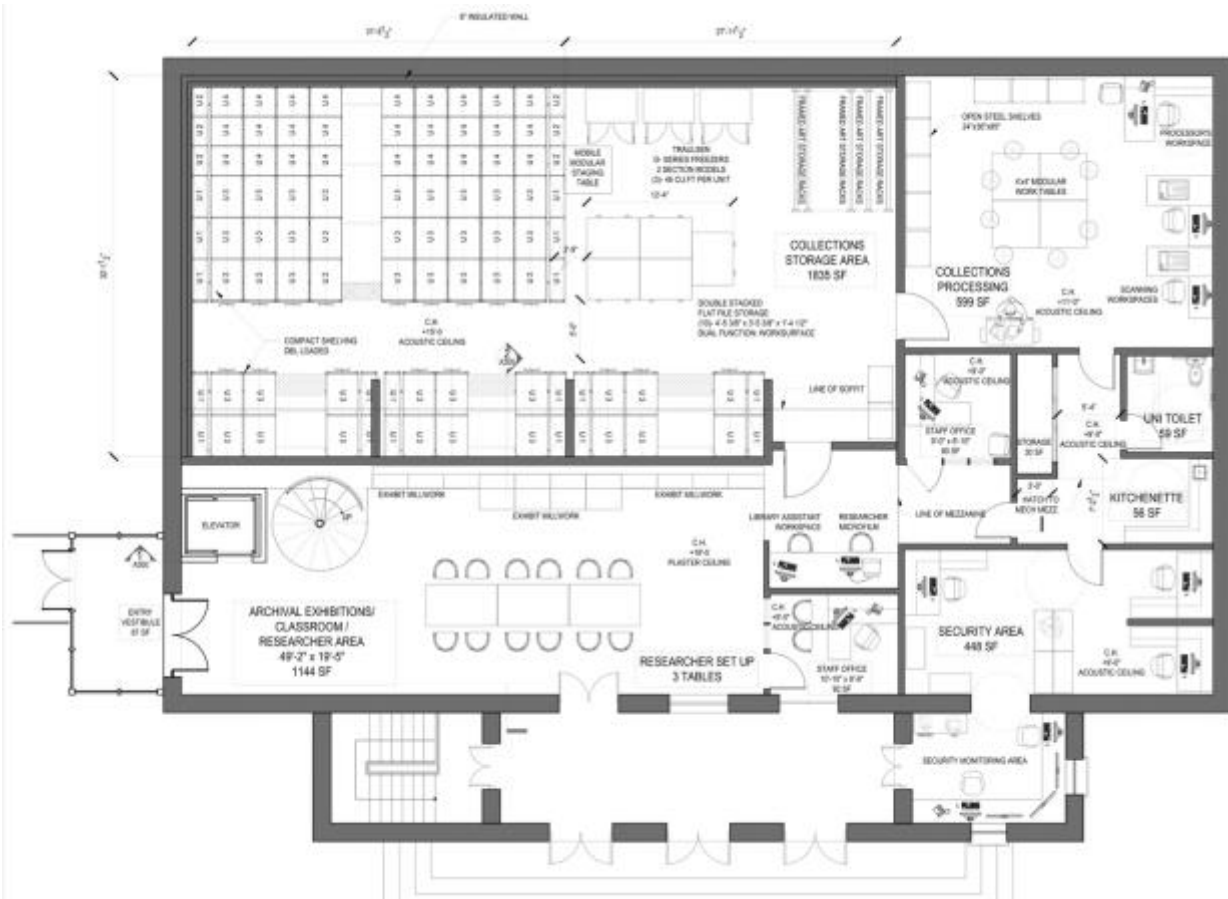
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Wildlife Conservation Society Archives Conceptual Preservation Design Plan
White Paper Report for NEH Sustaining Cultural Heritage Collections Foundations Program
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Abstract

Addressing insurmountable preservation challenges in the current storage spaces of the Wildlife Conservation Society (WCS) Archives, the project described in this report resulted in the successful development of a Conceptual Preservation Design Plan for the renovation of a new WCS Archives space. This project was made possible by a National Endowment for the Humanities Sustaining Cultural Heritage Collections Foundation Grant (\$40,000) awarded to WCS in 2015.

Founded upon preservation strategies that balance effectiveness, cost, and environmental impact, the Conceptual Preservation Design Plan will serve as the crucial first step in the Archives' relocation to this new space. The plan was developed by an interdisciplinary team of skilled professionals—from the fields of archival management, preservation environment management, facilities management, mechanical system performance, architectural engineering, and sustainable design—between September 2015 and October 2016. Through this plan, the WCS Archives seeks to develop the foundation that will guide the sustainable protection of our physical collections and the continued study and enjoyment of these unique collections by future generations.

It is the hope of the WCS Archives that sharing our project results will be valuable to other cultural heritage institutions and particularly other small programs like ours. The project's drawings are included as an appendix to this report, and additional documentation is available upon request.

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Project Background

The Wildlife Conservation Society (WCS) Archives comprises records created over the history of the organization, which began in 1895 as the New York Zoological Society (NYZS). At over 1,200 linear feet, the collections reflect WCS's substantial record of activities, which includes developing and running five zoological parks in New York City, led by the world-famous Bronx Zoo; in addition, throughout its history, WCS has been dispatching leading conservationists to study and protect wild life in their natural habitats, and the organization's current global conservation program can be traced back to NYZS's earliest goals.

Containing more than 1,200 linear feet of records related to such subjects as zoo and aquarium administration; the care, treatment, and exhibition of animals; conservation fieldwork; and animals in art and architecture, the WCS Archives holds a broad importance to the humanities and has proven particularly valuable to the disciplines of US history, the history of science, and cultural history. The collections have been used not only to chronicle events in the histories of WCS, zoos and aquariums, wildlife conservation, and New York City; they have also been used to explore issues of society's relationship to nature, the human-animal relationship, and concepts of what it means to be "wild."

After a period of neglect brought on by staff shortages, the WCS Archives is undergoing a revitalization led by the development of a new, larger staff over the past five years, with a full-time Library & Archives Director and two full-time archivists. This staff has made major improvements to the care of the collections and access to them. However, the Archives continues to find itself up against an insurmountable challenge: the preservation threats posed by our current storage spaces in the basement of a 106-year-old building on the Bronx Zoo's campus. Climate data collected over the past five years reveals significant environmental issues in these storage areas—particularly high humidity levels—that are actively detrimental to the collections' long-term survival. Given noticeable structural problems in the basement, these results come as no surprise. In spite of improvements developed by Archives staff through preservation practices and policies, we have been aware that we are fighting an uphill battle. The current storage spaces are fundamentally unsuited to serve as sustainable preservation spaces, and WCS administration has advised the Archives that the institution cannot support the major changes to Administration East required to meet the collections' preservation needs. Recognizing the Archives' value, however, WCS leadership has offered new space on the Bronx Zoo campus in a 1922 building known as Heads and Horns. Originally opened as a gallery to showcase the "vanishing big game of the world," the building today serves as office space primarily for WCS's Education and Security Departments.

Project Description

The Conceptual Preservation Design Plan (CPDP) completed under this grant takes the Heads and Horns building as its basis and envisions it as a sustainable space that balances effectiveness, cost, and environmental impact. First and foremost, the CPDP creates an 1,835 sq. foot sustainable preservation storage space for the Archives' collections that will maintain year-round ranges of 45 to 60 degrees F and

35 to 55% relative humidity. Focusing on these year-round ranges rather than a single set point allows the mechanical systems to take advantage of seasonal changes, thereby conserving energy. The storage space's size allows for thirty-years' growth of the collections. Although we recognize that the rate of paper accessions will slow, we are also aware of large quantities of paper materials that WCS departments have stored offsite, and following our institutional records retention policy, we expect that much of these will be accessioned into the Archives in the near future. Allowing for thirty-years' growth is another marker of the space's sustainability by preventing a need for the future development of additional preservation storage spaces.

The storage space will include the following furniture:

- A main compact shelving system for cartons and Hollinger boxes measuring 19' deep, 31' long, and 10' high (and allowing 6.75" at the bottom in the event of minor flooding and 5' above to accommodate lighting and sprinklers while also promoting air circulation above the collections).
- A secondary compact shelving system separated by two structural beams and sitting below an overhang created by a mezzanine level in the multi-purpose area. This shelving system will measure 6' deep, 47' long, and 6' high (with space above and below similar to that for the main compact shelving system). This secondary system will be used primarily for flat box storage and vertical files.
- 10 flat file storage units which will double as a work surface for retrieving materials from these units.
- 4 storage racks for framed art.

Additionally, the space will include three mobile freezer units for holding newly accessioned film and photographic materials as well as film and photographic materials in the process of being digitized. The WCS Archives has very recently received funds to repair a long-inactive cold storage vault elsewhere on the Bronx Zoo campus, and we intend to store our photographic and film materials there. Although it would be convenient to have the cold storage vault within the space created by the CPDP, we decided that it was pragmatic from a cost and environmental standpoint to continue to use the existing unit rather than attempt to incorporate such an energy-heavy element into this new space.

Directly outside of the collections storage area will sit a 599 sq. foot processing area, which will accommodate staff workspace and supplies storage. Because of lack of space in the WCS Archives' current configuration, our processing is done in the same rooms where we store our collections, and to avoid subjecting our staff to claustrophobic conditions, we keep the doors to these spaces open during work hours. From an energy standpoint, we know this to be an inefficient use of space that should be devoted to preservation, so we are pleased that the new plan calls for a separation between storage and workspace. Additionally, the CPDP includes workspace for WCS Library and Archives staff, whose desks, under our current configuration, are located in a separate building from where the collections are stored. Consolidating staff and collections into one building solves several logistical challenges, including ready access to the collections and in-person monitoring of the preservation environment when staff are not processing.

Another feature of the concept plan is the development of a 1,144 sq. foot multipurpose space to be used for researchers, classes, and other visitors, as well as for exhibition display and library collection storage. Like the archival collections storage area, this space takes advantage of the building's original high ceilings (covered today by drop ceilings) to create a new mezzanine level. Today, the WCS Archives lacks a dedicated space for those wishing to use the collections. We have co-opted a hallway space outside our collections storage areas and set up mobile furniture for researchers as needed; when we host classes, we walk collections materials up two floors to the nearest meeting space. In addition to the difficulties posed by transporting sometimes extensive quantities of materials for classes, our current makeshift researcher area is far from ideal. The basement hallway is frequented by WCS maintenance staff needing to access recycling bins and the building's boiler and telecom rooms, and we sometimes have to move researchers out of the way to accommodate them. In addition to the general inconvenience of this, we recognize that the current setup's shabbiness does not convey our belief in the collections' importance and their preservation. The CPDP's new elegant and functional multipurpose space aims to redress this issue.

Outside of the collections storage area, the other spaces on the ground floor of the Heads and Horns building will maintain year-round ranges of 65 to 70 degrees F and 35 to 50% relative humidity. These ranges were developed to balance human comfort with the needs of collections materials while they are outside of storage; at the same time, setting the same range for the rest of the floor aims at meeting the project's goals of cost and energy efficiency.

Finally, the CPDP sketches out in broad terms the redistribution of the building's space, including a lower floor, for other departments currently residing in the Heads and Horns building. Although the Archives is not part of WCS's Education Department, we are increasingly working with Education by using primary materials with visiting classes, and we are excited about the opportunities that this new proximity between our two spaces can create. We also see as beneficial the Archives' close proximity to WCS's Security Department in the concept plan.

In addition to the points already mentioned, the CPDP is built on other features devised with the goal of sustainability. In fact, the very location is one, as we are renovating an existing space and upgrading its mechanical systems rather than building a new space, which would be far costlier and have a greater environmental impact. The existing building also taps into the Bronx Zoo's microturbine cogeneration system, which provides a green source of power. Additionally, ceiling heights within the various areas have been devised with a goal of energy efficiency: while the multipurpose area takes advantage of the full 18-foot ceiling height to accommodate a mezzanine level, the ceiling in the collections storage area is set at 15 feet to allow us to avoid conditioning unused space, and additional areas are set at 9 feet and 11 feet for the same reason. A final sustainability feature is the box-inside-a-box construction of the collections storage area. Freestanding interior walls in the space will be constructed offset approximately six inches from the existing walls. This will allow the inside surface of the existing wall to indirectly conditioned by the plenum space above the storage space. It also allows for the construction of a high performance wall, which will include a vapor barrier and high R-value insulation. This construction results in a small loss of usable floor area (50 sq. feet) due to the offset and would likely require a moderate first cost, but it would

use less energy than other wall assembly options.

The CPDP was developed between October 2015 and September 2016 by an interdisciplinary team with expertise in preservation environment management, facilities management, mechanical system performance, architectural engineering, and sustainable design—as well as insight into the contents of the collections, their strengths, and their challenges. Specifically, this team consisted of:

- the three full-time WCS Library and Archives staff members: Institutional Archivist and Project Director Madeleine Thompson, MLS, PhD in English; Processing Archivist Leilani Dawson, MLS; and Library and Archives Director Kerry Prendergast, MLS.
- two architects from WCS's Exhibits and Graphic Arts Department (EGAD): Director of Design Management Paul Tapogna, RA, LEED AP; and Architectural Designer Jean-Pierre Walker.
- the Executive Director of Bronx Zoo Facilities, Robert Gavlik.
- a Senior Preservation Environment Specialist from the Image Permanence Institute, Jeremy Linden.
- two Mechanical, Electrical, and Plumbing (MEP) engineers from Dagher Engineering: Founder and Senior Principal Elias Dagher, PE, LEED AP BD+C; and Project Manager Daniel Nielsen, PE.

The project was accomplished through four phases carried out between September 2015 and October 2016. The first two months comprised the *preparatory phase*. During this first phase, the project director gathered and distributed to the team all background documentation, including past climate data, preservation assessments, building plans, and equipment specifications and documentation. This phase culminated in a one-day onsite project team assessment meeting in October 2016. During this meeting, all project team members met at the Bronx Zoo to discuss the project scope and schedule, review gathered background documentation, and tour the space. One deviation from our original work plan took place during this phase. Under the project, we purchased five PEM data loggers which we intended to use to monitor the Heads and Horns building. During our onsite meeting, however, we determined that climate readings of the building would not be helpful because we quickly came to the conclusion that the CPDP would require the replacement of existing mechanical systems with newer, more energy-efficient ones. Rather than installing the data loggers in Heads and Horns, then, we have used them in our existing spaces, which has allowed us to pinpoint even further some humidity problems in these spaces, and we have subsequently acquired two new dehumidifiers to address these problems.

The second phase, the *design phase*, took place between November 2015 and May 2016. This phase was composed of a mix of in-person and phone meetings, including two all-team meetings by phone, another all-team onsite meeting, and a final all-team meeting by phone, during which we reviewed and provided feedback on the CPDP at various set points of completion. These meetings were also supplemented by discussions between WCS Archives and EGAD staff and between EGAD staff and Dagher engineering staff.

During the *final production phase*, which occurred between June and September 2016, the final CPDP, including conceptual drawings and an MEP systems conceptual narrative, was produced by the team's

architecture and engineering professionals. The WCS team also engaged an estimator to provide estimated design and construction costs.

Throughout these three phases, and extending beyond them, the WCS team was engaged in an ongoing *dissemination phase*, completed in October 2016. This included composing this final report and a white paper for NEH, posting about the project on the WCS Archives' blog, [Wild Things](#), and presenting the project's results at meetings with WCS staff. We also reported on the project in the Society of American Archivists' Museum Archives Section newsletter. Additionally, the Archives worked with WCS's Communications Department to compose [an August 2015 press release](#) announcing the grant award and project start, and this release was distributed to WCS's regular list of media outlets and was promoted on the WCS Archives' Twitter account. Although we originally intended to create a press release announcing the project's completion, we have determined that this information was better conveyed to more relevant audiences through a posting on the Archives' blog.

Outcomes

Aside from the development of the CPDP, this project resulted in several accomplishments. Perhaps foremost among these was the foundation this CPDP provided us for gaining support with WCS leadership to pursue subsequent phases of the plan, namely the design and construction phases. Like many institutional archives, the WCS Archives struggles at times with the fact that our mission—in short, to preserve and share the organization's history—is not the same as our organization's mission to save wildlife and wild places. The reality is that when faced with fundraising objectives like protecting elephants against ivory poaching or building a new New York Aquarium to educate visitors about the challenges facing marine life, the preservation of our own history has fallen behind as a priority. However, WCS Archives' staff have had much success over the past five years with proving how the Archives' mission supports WCS's mission, in particular by preserving and promoting WCS's role as a conservation organization with a long history of success and as the parent organization of several New York City parks that have been beloved by generations. Our value has been increasingly recognized by WCS leadership, which is evidenced in part by the support we received for applying for this grant in the first place. The fact that we received the grant—that the National Endowment for the Humanities has recognized the worth of this project—has frankly strengthened recognition of the project's worth by our own organization's leadership, and we are encouraged by the support we have received so far in our pursuit to continue to the project. This will be discussed in more detail in the following section.

Another major accomplishment of this project was the successful working relationship of the interdisciplinary team. From the standpoint of Archives' staff, working with a team of architects, engineers, and facilities specialists gave us a very useful education in the more technical aspects of preservation and environmental design for archival collections. Particular credit is due to team member Jeremy Linden. As a Preservation Environment Specialist, Jeremy "speaks" both archives and facilities, and throughout the project he not only served as a sort of translator between Archives staff and the rest of the team, but he

made sure that each side understood the other. Archives staff came out of the project understanding, for instance, how different wall gradient plots influence condensation within vapor barriers, while the architects, engineers, and facilities specialists came away with an enhanced understanding of the significance of our collections and why particular temperature and humidity conditions are necessary for its preservation.

On a related note, an important consequence of the project was a strengthening of the relationship between WCS Archives and Facilities staff. Through its regularly scheduled meetings, the project gave the Archives the opportunity to develop a relationship with the Executive Director of Bronx Zoo Facilities. We gained his expertise in the new space's needs, and his input was key to developing a plan that puts our Facilities staff in more of a proactive than reactive relationship to this space. We believe that CPDP project and its subsequent phases will continue to enhance our relationship and mutual understanding of one another's departments.

Assessment and Continuation of the Project

We did not conduct a formal evaluation of the project, but we consider the project successful based on the accomplishments discussed above. That said, one way that our project might have been strengthened was by building plans for its continuation into the original work plan. We have done this naturally as the project has wrapped up as discussed below. Yet because this was a foundation project and we thus knew that we intended to build on it after its completion, we might have begun mapping out our methods for attempting to continue the project even from its start in order to maintain the momentum we have developed behind it.

The true long-term impact of the project, to some extent, will be measured by the success of its continuation. Aside from this, however, the WCS Archives has already felt several positive effects from this project. Most important, this project has given the WCS Archives the foundation on which we will build our new space. This is meant quite literally, as the CPDP will serve as the basis for future schematic design plans but also more figuratively, as the CPDP has allowed us to develop a foundation on which we will continue to grow support for the building of a new WCS Archives space.

The project has two subsequent phases, a design phase and a construction phase. One activity of the CPDP was acquiring a professional estimator's quotes for these phases, and these come to approximately one million dollars for design and nearly 12 million dollars for construction.

A recent presentation about the project to WCS's President and CEO resulted in his encouragement for its continuation. Archives staff have already begun working with WCS leadership to consider funding sources for the project's subsequent phases. While we are still in the early stages of planning for this fundraising and we recognize the long road ahead of us, we are encouraged by some of the ideas coming out of this planning, which include expanding WCS's traditional donor base to consider potential funders with interests in zoo, conservation, and New York City history, as well as leveraging WCS's 125th anniversary in 2020 and the Heads and Horns building's 100th anniversary in 2022.

Appendix: WCS Archives Conceptual Preservation Design Plan Drawings by WCS's Exhibits and Graphic Arts Department (EGAD)

Additional information, including sustainability features for various spaces, is available in the white paper.

Drawing a113.0 (First floor of Heads and Horns Building)

This drawing shows all of the WCS Library and Archives' spaces, including (clockwise from top left):

- 1,835 sq. foot sustainable *preservation storage space* for the Archives' collections. This room features 15-foot ceilings as well as one exit to the collections processing area and another to the multipurpose area in order to facilitate easy access for Archives' staff who are processing and working with researchers. The space will also include the following storage furniture:
 - A main compact shelving system for cartons and Hollinger boxes measuring 19' deep, 31' long, and 10' high (and allowing 6.75" at the bottom in the event of minor flooding and 5' above to accommodate lighting and sprinklers while also promoting air circulation above the collections).
 - A secondary compact shelving system separated by two structural beams and sitting below an overhang created by a mezzanine level in the multipurpose area (see Drawing 300). This shelving system will measure 6' deep, 47' long, and 6' high (with space above and below similar to that for the main compact shelving system). This secondary system will be used primarily for flat box storage and vertical files.
 - 10 flat file storage units which will double as a work surface for retrieving materials from these units.
 - 4 storage racks for framed art.
- 599 sq. foot *processing area*, which will accommodate staff workspace and supplies storage.
- Approximately 600 sq. feet of space for staff offices and workspaces, a kitchenette and toilette, and throughways.
- 1144 sq. foot *multipurpose area* to be used for researchers, classes, and other visitors, as well as for exhibition display and library collection storage. The area will take advantage of 18-foot ceilings to add a mezzanine level. It will be accessible through an existing entrance from the west side of the building as well as through a new ADA-compliant entry vestibule on the north side. For ADA-compliance, the area will also include an elevator for access to the ground floor and the mezzanine.

The first floor will also house WCS's Security Department in an expanded 448 sq. foot space.

Drawing a300 (First floor of Heads and Horns Building)

The upper drawing shows a section of the multipurpose area, including exhibition display and mezzanine access to library collection storage. The lower drawing is a cross-section of the multipurpose area and the collections storage area, showing the overhang created in the collections storage area by the mezzanine.

Rendering 1 (First floor of Heads and Horns Building)

This rendering depicts the new multipurpose area, including room for researchers, exhibition display, and a mezzanine level for library collections storage. A staff workspace adjacent to the area with large interior windows allows staff to monitor the area.

Drawing a100.01 (Basement floor of Heads and Horns Building)

This drawing shows a reconfiguration of the current workspace setup as well as an addition—including more workspaces, an additional enclosed mechanical room, and an outdoor plaza—on the east side of the building. This floor will be occupied by WCS Education Department staff.

Drawing a001 (Site Plan)

This drawing depicts a change in grading on the building's north side to accommodate a new ADA-compliant entry vestibule.



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KEY PLAN

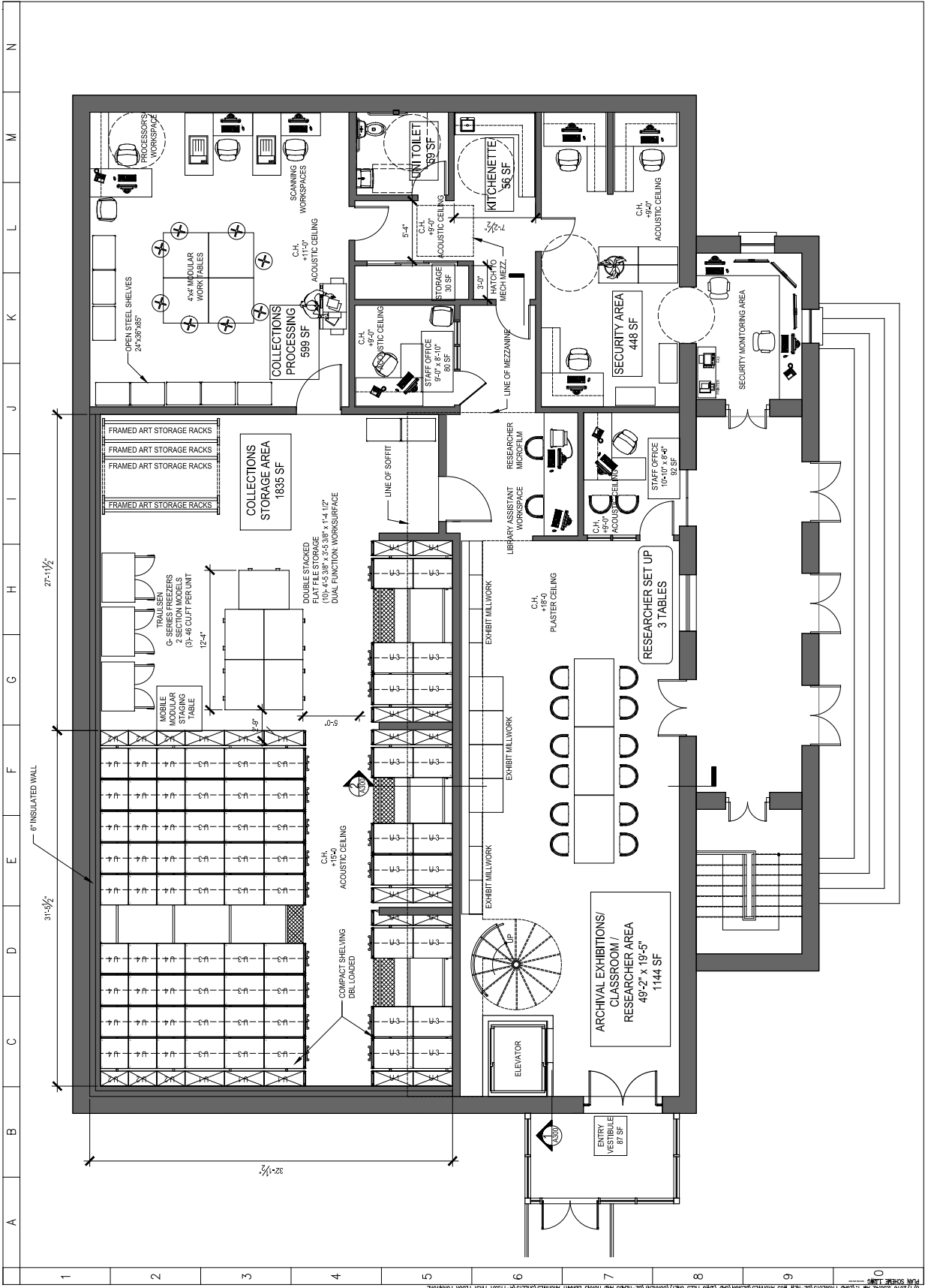
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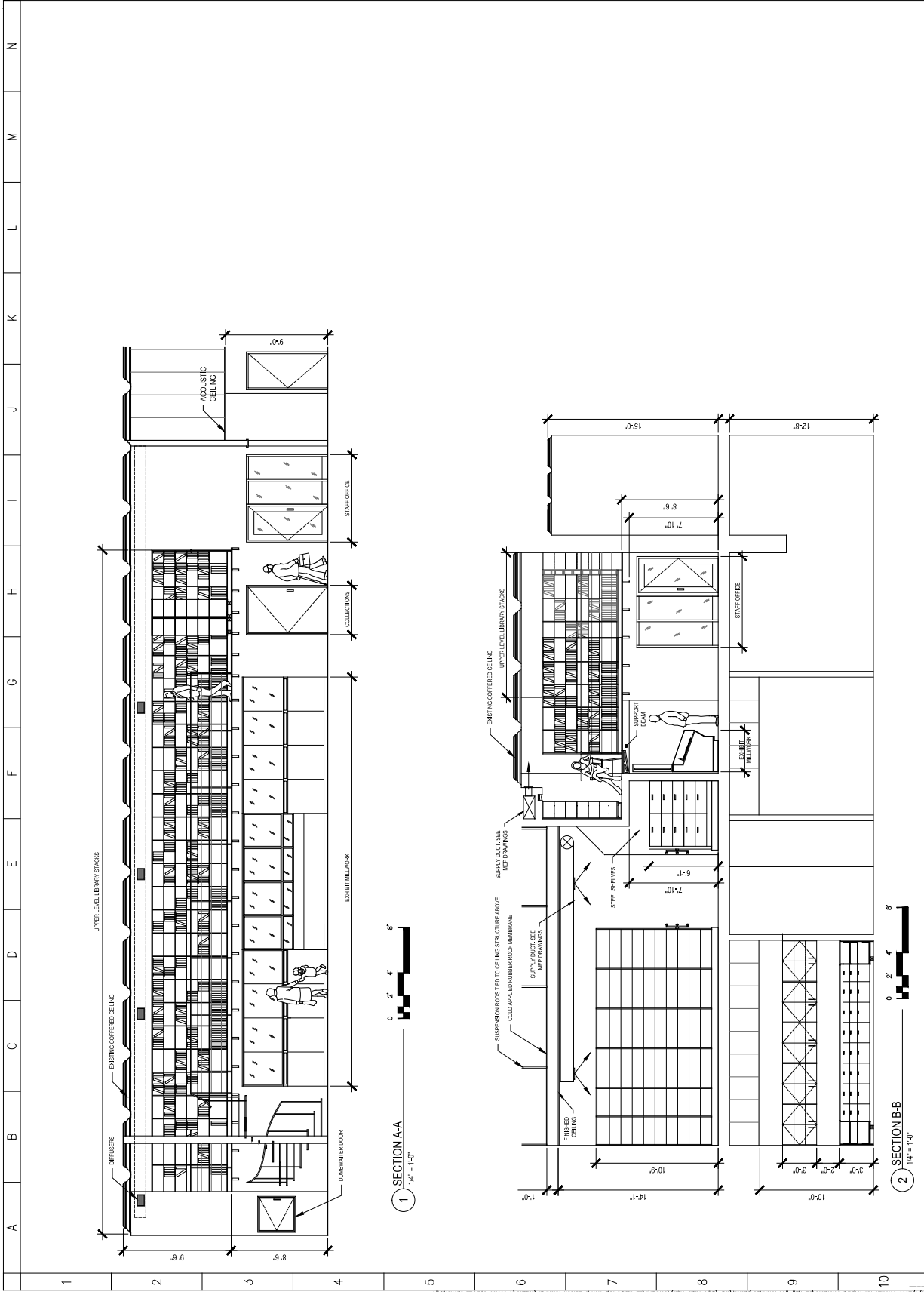
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ARCHIVES
SHEET NAME: FIRST FLOOR
FURNITURE PLAN

DRAWN BY: JPW
CHECKED BY: PT
DATE: 04.12.2016
SCALE: 1/4" = 1'-0"
DRAWING NUMBER:

A-113.00





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KEY PLAN

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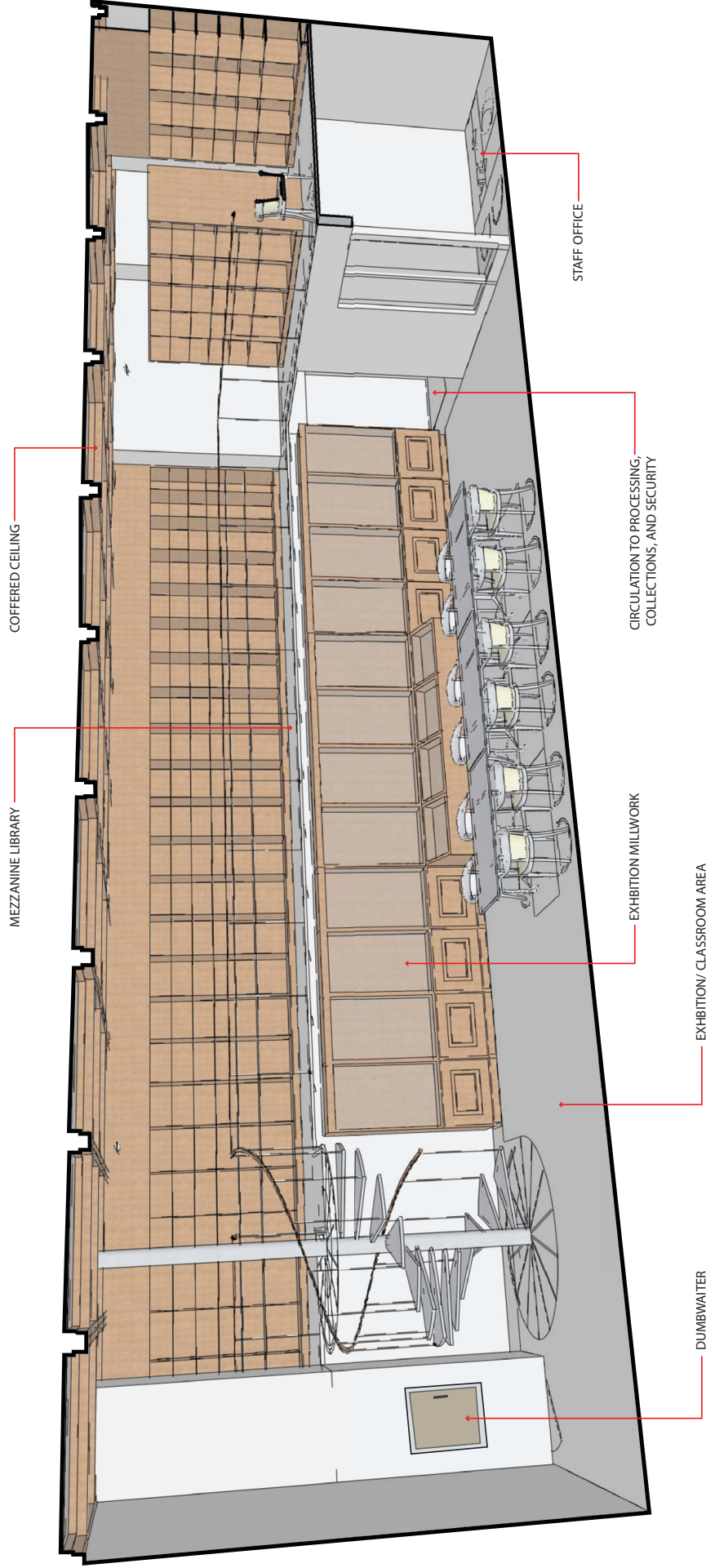
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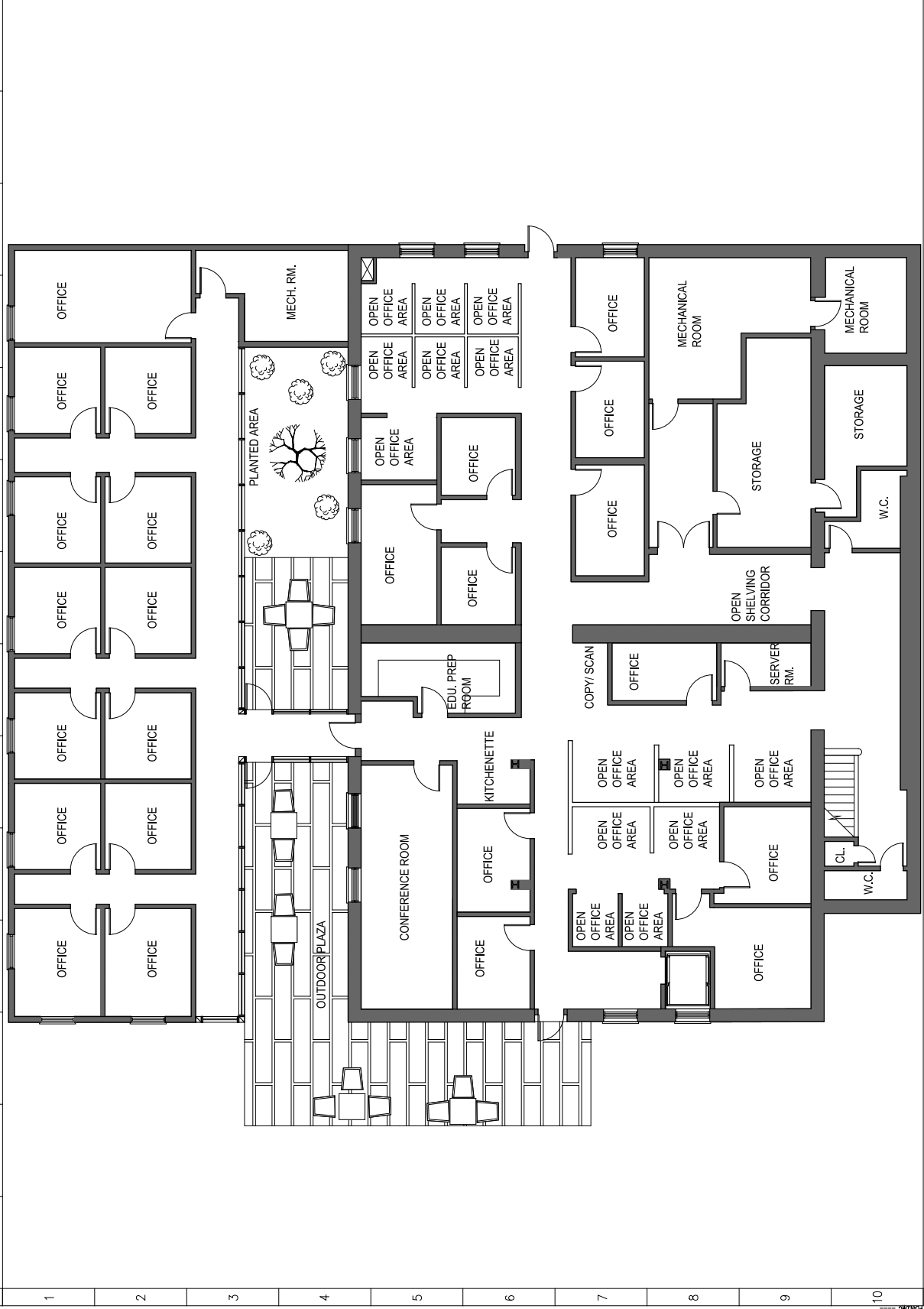
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PROJECT NAME:
**HEADS AND HORNS
ARCHIVES**

SHEET NAME:
DETAIL PLAN SECTION ELEVATION

DRAWN BY:
CHECKED BY:
DATE: 02/09/2016
SCALE:
DRAWING NUMBER:

A-300.00





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CONSULTANT:

KEY PLAN:

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[illegible]

PHASE: PHASE
PROJECT NAME: HEADS AND HORNS
ARCHIVES
SHEET NAME: SITE PLAN AND VESTIBULE PLAN

DRAWN BY: JPW
CHECKED BY: PT
DATE: 04.18.2016
SCALE: 1/4"=1'-0"

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